

**Amendments to the Drawings**

Fig. 2 is amended to illustrate the inclusion of slots (11a).

### **REMARKS/ARGUMENTS**

The present amendment is in response to the Office Action mailed July 7, 2003, in which Claims 1 through 12 were rejected. Applicants have thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the reference cited therein. The following remarks are believed to be fully responsive to the Office Action and, when coupled with the amendments made herein, are believed to render all claims at issue patentably distinguishable over the cited references.

The specification and Claims 1, 5, 6, 7, and 10 are amended herein. Claims 2 and 3 are cancelled. New Claims 13 through 20 are added for consideration at this time. Accordingly, Claims 1 and 4 through 20 remain pending.

All the changes are made for clarification and are based on the application and drawings as originally filed. It is respectfully submitted that no new matter is added.

Applicants respectfully request reconsideration in light of the above amendments and the following remarks.

### **ABSTRACT**

With respect to Paragraph 2 of the Office Action, the Examiner stated that the application does not contain an abstract.

The specification has been amended as set forth above to include an abstract. In addition, a separate page has been added at the end of this response which includes an abstract.

Favorable reconsideration is respectfully requested.

### **CLAIM INTERPRETATION**

With respect to Paragraph 3 of the Office Action, the Examiner stated that the language "preferably terminating in a pointed tip" is not a positive limitation.

Claim 2 has been cancelled herein and its limitation has been introduced into amended Claim 1. The language "preferably" has been removed.

### **SPECIFICATION OBJECTION**

With respect to Paragraph 4 of the Office Action, the Examiner objected to the specification because there was no antecedent basis for the subject matter of Claim 11.

The specification and drawings have been amended to include this subject matter.

Favorable reconsideration of the Examiner's objection is respectfully requested.

### **CLAIM OBJECTIONS – 35 U.S.C. SECTION 112**

With respect to Paragraphs 5 and 6 of the Office Action, the Examiner rejected Claims 1 through 12 under 35 U.S.C. Section 112 as being indefinite for failing to particularly pointing out and distinctly claiming the subject matter which applicants regarded as the invention,

*Specifically:*

Claim 1 was rejected under 35 U.S.C. Section 112 because of the use of the recitation "type." The claim has been amended to remove this recitation.

Claim 3 was rejected under 35 U.S.C. Section 112 because its dependency should be changed from "1" to –2--. This rejection is moot in view of the cancellation of this claim herein.

Claim 5 was rejected under 35 U.S.C. Section 112 because its dependency should be changed from "1" to –4--. Claim 5 has been amended accordingly.

Claim 7 was rejected under 35 U.S.C. Section 112 because its dependency should be changed from "1" to –6--. Claim 7 has been amended accordingly.

Claim 10 was rejected under 35 U.S.C. Section 112 because the recitation "at least one thermopin according to one of Claims 1 to 9 is fixed to the die lip without any play" is indefinite. Claim 10 has been amended to remove the indefiniteness.

Reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. Section 112 are respectfully requested.

### **JOINT OWNERSHIP**

With respect to Paragraph 8 of the Office Action, the Examiner expressed his presumption that the subject matter of the various claims was commonly owned at the time any inventions covered in the application were made absent any evidence to the contrary.

Applicants respond that the Examiner's presumption is correct.

### **CLAIM REJECTIONS – 35 U.S.C. SECTION 103(a)**

With respect to Paragraphs 7 and 9 of the Office Action, the Examiner rejected Claims 1 through 12 under 35 U.S.C. Section 103(a) as being unpatentable over U.S. Patent No. 5,020,984 to Cloeren *et al.* (hereinafter referred to as "Cloeren *et al.*") in view of U.S. Patent No. 4,753,587 to Djordjevic *et al.* (hereinafter referred to as "Djordjevic *et al.*").

Applicants respectfully traverse these rejections.

Cloeren *et al.* provides an extrusion apparatus with a mechanism for thermally-controlled lip gap adjustment. While having certain features in common, it was acknowledged by the Examiner that the construction of the present invention differs from that of Cloeren *et al.* at least in that the cited

reference fails to disclose a clamp which is engaged simultaneously with the lip nose and with a groove at the lower end of the thermopin. Thus, by definition, the device of Cloeren *et al.* lacks the bores of the clamp and of the thermopin, such that the fixing means is passed through both bores for fixing the thermopin to the die by the clamp.

To overcome this failure of teaching the Examiner is relying upon Djordjevic *et al.* In general, this reference is directed to an extrusion die having an adjustable lip opening through which thermoplastic material is forced to form a flat sheet. By referring to and relying upon Djordjevic *et al.*, the Examiner takes the position that this reference discloses the fixing of the thermopin to the die by means of a clamp in such a way that the clamp would engage with the lip nose on the one hand and with a groove of the thermopin 12 (Fig. 1) simultaneously. Relying upon this combination, the Examiner determined that it would have been obvious to modify the teachings of the die of Cloeren *et al.* in accordance with the teachings of Djordjevic *et al.* to achieve the invention as previously claimed.

Applicants agree that Cloeren *et al.* do disclose a clamp engaged in a lip nose and also agree that this reference does not disclose a groove in the lower end of the thermopin. According to the teachings of Cloeren *et al.*, the thermopin is connected or screwed with its lower end to the clamp, and in such a manner the clamp becomes an "integral" part of the thermopin in that the

thermopin connected to the clamp makes one piece which is fixed to the die. However, Applicants observe that with such a configuration the thermopin would have to be pulled upwards to take it off together with the clamp, since the thermopin cannot be separated from the clamp until the pin has been removed from the die.

Conversely, with the present invention as now claimed, there is an additional groove defined at the lower end of the pin and a separate screw is applied from the front side. The screw may thus be loosened from the front side while the thermopin remains in its position. Thereafter the clamp is removed separately, thus enabling removal of the pin towards the direction of the front side. This is more than mere design choice in that the design of the present invention as claimed allows for much easier and less complex equipment handling, thus reducing cost and wasted time. Moreover, in the present invention as claimed, because the lower end of the pin is not used for fixation to the clamp, the lower end of the pin may be configured to advantage in any way that the designer and manufacturer see fit for specific applications. Conversely, the design of Cloeren *et al.* provides no such flexibility and the lower end of the thermopin cannot be modified because of the fastening arrangement whereby the end of the thermopin is used to screw the pin to the clamp.

Looking to the disclosure of Djordjevic *et al.*, this device fails to disclose

an arrangement which has several separate thermopins. Instead, Djordjevic *et al.* teaches only a die in which the adjustment is achieved by a flat cooling and heating **block** which extends along the width of the die. This block is substantially L-shaped (col. 4, lines 7 to 10). Clearly such an extended L-shaped block is a single, integral body and does not compare to single thermopins which are mounted separately on the die. Thus this is one of several significant differences between the teachings of Cloeren *et al.* and Djordjevic *et al.*, and also underscores the differences between the teachings of these two references and the present invention. The fixing of a single, integral block to a die is far easier because the block has inherently less play than does a single thermopin. In view of these significant differences, Applicants respectfully submit that the combination proposed by the Examiner is an improper combination and, in fact, the skilled artisan looking for ways to reduce the play of a thermopin would not consider Djordjevic *et al.* at least because of this references teachings as to the fixing of a fully extended heating block.

Furthermore, Applicants respectfully submit that the way of fixing the thermopin using a clamp according to Djordjevic *et al.* is very different from the fixing method taught and claimed in the present invention. Djordjevic *et al.*, in fact is somewhat unclear on this point and this lack of clarity makes this reference even less appropriate for use in the Examiner's rejection under 35



U.S.C. Section 103.

Particularly, while it seems clear that Djordjevic *et al.* discloses a groove in the lip nose and an engagement of the clamp in such groove of the lip nose, it cannot be derived from Djordjevic *et al.* to any degree of reliability that the clamp socket is also engaged in the groove of the thermopin. For example, even after a careful review of Figure 1 of Djordjevic *et al.*, it is not possible to identify the groove of the thermopin. Element 12 denotes the whole flat heating and cooling block extends from the upper to the lower end and is indeed a single, integrated block. (The Examiner's attention is also respectfully directed to the teachings in Djordjevic *et al.* at col. 4, lines 7 - 8 and 24 - 25. The lower end of this block is identified as "leg 13." But such lower end 13 does not show any groove at all. The area in the drawing *next* to leg 13 seems to be nothing more than a space area since it is not marked in the drawing. It is rather a blank area like the recess 5. Accordingly, it is simply unclear whether this area is, in fact, part of the heating block or not. If it were to be part of the block, there is no discernible groove similar to the present invention as claimed. Upon comparison of the drawings and relying upon the accompanying text to the extent possible, Applicants respectfully submit that the entire approach and design for fixing the thermopin of the present invention is very different from the teachings of Djordjevic *et al.* In view of these differences, Applicants respectfully hold that a skilled artisan will not arrive at the invention as

presently claimed through the combination of the teachings of the thermopin clamping configurations Cloeren *et al.* with the teachings of Djordjevic *et al.*

As a further example of how such a combination of references would fail to teach, suggest, or otherwise render the present invention obvious as asserted by the Examiner, the resulting combination – even if permissible - would still lack a tapered end of the thermopin which is neither disclosed by Cloeren *et al.* nor by Djordjevic *et al.* Specifically, the thermopin of Cloeren *et al.* could not even be modified at the lower end, since according to this reference the end of the pin is used to screw the pin onto the lip nose. In the teachings of Djordjevic *et al.* it remains unclear which part of his element is in touch with the lip nose, but in any case a tapered end is not suggested in any way. Certainly a block extending over the width of the die could not be designed into a tapered pointed tip in any event, and this is the only conclusion as to the teachings of Djordjevic *et al.* that can be reached by reliance on this reference. Even if one were to assume the white space area of Djordjevic *et al.* as being a part of the heating block, the design of this part is not really grooved. And even if one were to take this design as a groove, a further difference between the teachings of Djordjevic *et al.* and the present invention is that the bore of the thermopin of the present invention as claimed is provided between the tapered end and the groove, whereas according to Djordjevic *et al.* in its best and closest interpretation the bore would be provided in the

groove of the thermopin. This arrangement renders the entire construction mechanically weak, because the bore goes through a small weak part of the heating element. Finally it can be derived from the drawings that the clamps are also different. In the present invention as claimed the bore of the clamp is between the fitting surfaces 9, whereas the bore of the clamp according to Djordjevic *et al.* is squeezed into the upper part of the clamp.

Applicants respectfully conclude that as a result of a careful comparison of the cited references when taken alone or in combination and the invention as presently claimed it is apparent that there are several patentable distinctions:

- The lower end of our thermopin of the invention as presently claimed is truly "free" and thus any useful design can be applied.
- The thermopin of the invention as presently claimed has a groove, which is an important design for fixing the pin to the die.
- The clamp of the invention as presently claimed is engaged to both grooves of the die and the clamp
- The pin of the invention as presently claimed has a bore for fixing between the groove and the lower end.

- The bore of the clamp of the invention as presently claimed is about in middle of the clamp.

These features, among others, result in a system that is far superior to the teachings of the prior art. For example, the handling of the thermopin is easier. The contact point between thermopin and the die can be designed advantageously with specific configurations to meet the needs of the manufacturer. The different designs of the contact point results in a more precise adjustment of the die gap because a tapered or point-like end the thermopin only presses with its pointed tip at a limited range of the die (see page 6, lines 31 to page 7, line 9). All of these advantages are achieved with the thermopin being fixed to the die without any play, thus working much more precisely than the thermopin fastening arrangement taught by either Cloeren *et al.* or Djordjevic *et al.*, when standing alone or in combination.

Accordingly, Applicants respectfully request that the Examiner's rejections under 35 U.S.C. Section 103 be reconsidered and withdrawn.

#### **CITATION OF RELEVANT ART**

With respect to Paragraph 10 of the Office Action, the Examiner listed prior art that was made of record but was not relied upon. Applicants have reviewed the cited art but do not believe that these references challenge the

patentability of the present invention.

### **NEW CLAIMS**

New Claim 13 is based on amended Claim 1 but without the limitations of cancelled Claims 2 and 3.

New Claim 14 is based on Claim 4.

New Claim 15 is based on Claim 5.

New Claim 16 is based on Claim 6.

New Claim 17 is based on Claim 7.

New Claim 18 is based on Claim 8.

New Claim 19 is based on Claim 9.

New Claim 20 is based on Claim 12.

### **CONCLUSION**

In light of the above amendments and remarks, Applicants respectfully submit that all pending claims as currently presented are in condition for allowance. If, for any reason, the Examiner disagrees, please call the undersigned attorney at 248-433-7552 in an effort to resolve any matter still outstanding *before* issuing another action. The undersigned attorney is confident that any issue which might remain can readily be worked out by telephone.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



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